Denis J. Beer, New Orleans District, (504) 862-2948

1. The AristoCADD Quality Team found that the Tri-Service Center's GIS Spatial Data Standards (TSSDS) and the latest TSAEC Standards don't agree where the standards overlap. If we adopt the TSAEC Standards, then the TSSDS and effected files would be non-compliant. We believe this is important since we assume the two standards will merge eventually.

For example, we noticed that level numbering, which is required for GIS levels, isn't assigned. MVN has a standardized GIS level numbering assignment. We will need to revisit this issue to assess the impact when the TSAEC Standards assign such level numbering. Also, GIS needs bold fonts for presentation.

**Response:** We are in the process of assigning level numbers to the level/layer names. The Tri-Service Center would welcome any feedback on the level numbering scheme from New Orleans District.

2. Some Quality Team reviewers couldn't find the required TSAEC Standard fonts (e.g. Font 43) on their PC (page 23). Also using the TSAEC Standards global cube centroid as the origin will result in negative coordinates; MVN uses the left border as the origin. The TSAEC Standards' master units (1:1000:1) conflict with CEMVN's master units (1:1000:10). Some reviewers cited wide variation among Districts in their use of coordinate systems.

**Response:** Font 43 is a system font located within the MicroStation "font.rsc" file. The Center is reevaluating global origin recommendations and working units .

3. The TSAEC Standards' title block along the entire length of the right border of a plate will require those looking through existing file cabinet drawers to extend the drawer fully out to read the entire title block (along the right border). Otherwise, new cabinets with longer file draw depth are needed to allow reading the entire title blocks when the drawers are only partially opened.

RECOMMEND:

a) Allow the conventional title block in the lower right corner for sheet sets under a numerical limit; e.g. under 400 sheet sets.

**Response:** The use of border sheets with the vertical title block has already been mandated through ER 1110-345-700 dated 30 May 1997. The vertical title block was developed because it allowed the most usable working space per sheet. The bottom right corner of the border sheet still contains the most prevalent and pertinent information required by personnel who are trying to locate drawings.

4. The TSAEC Standards 22@x34@ or 34"x44" substitute sheets for the 28"x40" F size will require new storage file cabinets for all offices involved including CEMVN-ED-SD's Central Files. Information on the larger sheets will need new approved arrangement/ formatting. Adopting the next smaller 22"x34" sheet will require sheet redesign and more sheets per set. For base maps, each additional sheet would cost $1,000 to $1,200 per new re-designed base map. AE Firms will likely use the changes in format to justify higher costs. Current "official copy" record keeping policy requires the storage of at least one paper or microfiche copy for each final document. So hard copy storage has to be addressed.

Also, CEMVN-ED-LC (MVN's Channel Stabilization Section) has at least 900 drawings on F size 28@x40@ sheets that are used routinely. CEMVN-ED-G (MVN=s General

Engineering Branch) has been improving their F size drawings through addition of background aerial photography. The TSAEC Standards allows 22@x34@ and 34@x44@ size sheets. The standards imply that the 34@x44@ size sheets are only for master planning. Consequently, ED-LC and ED-G will have to discard recent sheet background improvements and transition their 28@x40@ maps and details to the TSAEC allowed 22@x34@ sheets. This will take considerable time (years) for compliance because of available funds. In particular, imagery CADD files will have to be re-cropped, reformatted, or redesigned.

RECOMMEND:

a) Return the 28"x40" F size sheet to the standard (or the Metric equivalent).

b) Survey more A-E Firms for their opinion of the TSAEC Standards and publish the findings.

**Response:** a) ER 1110-345-700 dated 30 May 97 mandated the use of the A1 sheet for "concept and final design drawings, and drawings for standard and definitive designs" and the A0 sheet for "large maps, i.e., installation master plans and drawings for Civil Works projects." Recommend that current drawings be converted on an "as needed" basis. b) The Center had an A-E firm evaluate the standards through the use of it in an actual project (Pentagon Renovation Project, DMJM-3D/I through Baltimore District). The Center will include the results of that validation on the final Release 1.7 CD.

5. The TSAEC Standards' 2 character project code (e.g. B6) for file naming will result in many cases of the same file names among different Corps (or Tri-Service) projects with the same 2 character project code designation. Also, each District, Agency, entity, etc. will have to reuse its A1 project code when that office exhausts all project codes from A1 through Z9. That is, what does one use after Z9?

RECOMMEND:

a) Incorporate 32-bit file naming instead of the current 8 character name plus the 3 characters for the file extension.

b) Develop an interactive WWW-based File-naming Clearing House/ electronic-naming checkout system to ensure project file name prefix uniqueness (Corps-wide or Tri-Service-wide). The level of Corps technology allows us to create a centralized clearing house through which all Corps drawings could be managed. Such a system should be developed with a goal of future integration into the Corps of Engineers Electronic Record Keeping System (CEERIS).

**Response:** The two character project code was added as a result of reviewing South Atlantic Division's standard which uses a two character project code. Due to some applications (i.e. email, file transfer protocols, etc.) inability to handle a naming convention other than the 8.3, we will continue to recommend the 8.3. We are in the process of evaluating extending the number of characters for the project code.

6. Level layer assignments are either too restrictive in some cases, haven't been made yet (See Appendix B; e.g. survey & mapping doesn't have level assignments), or don't address requirements in others (no levels assigned). The TSAEC Standards current explanation of the subject is confusing to many who tried to understand that explanation (Appendix C). Also the standards need to clarify which is considered civil works versus civil site in regards to which options apply. In particular, one has to guess which option is correct when using the current MicroStation Work Space.

**Response:** The Center is in the process of assigning level numbers to level/layer names. We are also evaluating whether or not to include Appendix C based on user responses (most users feel

the referencing of plans from other disciplines is intuitive). The Tri-Sevice Center is developing a workspace that will provide a clear distinction between civil/site and civil works projects.

7. None of MVN's cell libraries were included in the TSAEC Standards; MVN had officially submitted the libraries for inclusion but hasn't received acknowledgement or response.
**Response:** The Center does not have a record of receiving these symbols or who received them. The Center apologizes for this oversight. The Center does not guarantee that the symbols will be included with Release 1.7, but the symbols can be made available via the Internet as an addendum to the symbol library and incorporated into the next release. Please resubmit your CADD symbols to the following address:

Tri-Service CADD/GIS Technology Center
Waterways Experiment Station
CEWES-ID-C/Spangler
3909 Halls Ferry Road
Vicksburg, MS 39180

8. The Quality Team recognizes the direction to make drawings intelligent in order to promote object-oriented global revisions/ enhancements through the next generation of MicroStation. However, such direction will increase costs and initially slow production as users tackle the proposed code.
**Response:** Concur. However this issue is beyond the scope of the release of this standard at this time.

9. The MVN established CADD symbols are not part of the new TSAEC Standards. MVN submitted same previously but didn't receive follow-up acknowledgement.
RECOMMEND:
a.) Incorporate
1.) Unified Soil Classification system legend for soil/ rock borings.
2.) CIVSUR.CEL
3.) NEWNOD.CEL
4.) REEGIS.CEL
5.) NAVBOOK.CEL
Provide implementation status or reasons why Tri-Service Center has not included the subject symbols (in writing).
**Response:** The Center does not have a record of receiving these symbols or who received them. The Center apologizes for this oversight. Please resubmit your CADD symbols to the address in the response to question 7 (with the exception of CIVSUR.cel which the Center already has from the former EM document). The Center does not guarantee that the symbols will be included with Release 1.7, but the symbols can be made available via the Internet as an addendum to the symbol library and incorporated into the next release.

10. The TSAEC Standards are written for two dimensional CADD as it existed 2 to 3 years ago. The standards need to be visionary and address three dimensional CADD that is object-oriented and database oriented. Bentley Systems' MicroStation J is pursuing such. If Auto Desk and Bentley Systems are not pursuing the same CADD vision, then the TSAEC standards are in jeopardy.

**Response:** The Center is pursuing the attribution of the A/E/C CADD Standards. The initial efforts are downloadable from the Center's homepage at tsc.wes.army.mil. The Center realizes that object-oriented technology is the future of CADD, but for now the Center has to develop standards that address the current limits of the technology.